

1. (Amended) A balancing vertical load device for a linear motor, to be used in combination with a vertical driving device with controlled force and positioning, comprising:
~~a motor assembly, comprising a linear motor having a permanent magnet stator core, and a moving coil surrounding said stator core and being slideable in a linear motion thereto;~~
~~a digital linear array indicating the linear position of said moving coil; and~~
a load weight which, driven by said motor, performs a vertical movement; and
a sealed air pressure system, comprising an air cylinder, a piston gliding inside said air cylinder with low friction and being connected with said load weight, an air container,
~~with storing an air volume such that with a piston velocity of 2 m/s, a pressure differential created by movement of said piston during operation of said device is less than 3 percent,~~
~~and an air pressure source;~~
~~wherein whereby said sealed air system balances a load of said load weight, so that precise control of force and position of a vertically moving object, as if moving horizontally, is achieved.~~
2. (Amended) A balancing vertical load device for a linear motor according to claim 1, wherein said linear motor assembly has a feeding digital linear array feed back system for vertical position and force control.
3. (Amended) A balancing vertical load device for a linear motor according to claim 1, wherein a valve is inserted between said an air pressure source and said air container for adjusting air pressure in said air container to modify balancing force.
4. (Amended) A balancing vertical load device for a linear motor according to claim 1, wherein said linear motor assembly and said sealed air pressure system are mounted on a frame, with space within said frame being used for said air container.

REMARKS

Claims 1-4 are pending. Claims 1-4 stand rejected under 35 U.S.C. 112. Applicant believes that the amendment submitted herein removes all the material that the Examiner objected to under 35 U.S.C. 112.

However, Applicant is also aware that this also removes the basis for which Examiner withdrew the earlier rejection of claim 1 as anticipated by Berchtold (5303549). Applicant therefore wishes to address the earlier rejection by traverse of Examiner's reading of the word "fluid" in the Berchtold (5303549) claims, and by amendment to the claims to further differentiate the instant application from the claims of Berchtold (5303549).

Examiner has argued that the meaning of Berchtold (5303549)'s use of "fluid" in the claims is that all fluids must be covered a priori. However, there are clearly fluids that are not useable in the disclosed equipment in any meaningful way. Two examples might be salt water, which would be unuseable due to corrosion and solids precipitation, and body fluids, where out-gassing and viscous shear limitations would prevent the disclosed